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EXAMINER

CHUNG, JI YONG DAVID,

| ART UNIT | PAPER NUMBER |
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2143

DATE MAILED: 03/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/027,020

Applicant(s)

SARMA ET AL.

Examiner

Ji-Yong D. Chung

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>7/28/2003, 03/04/02, 05/27/03</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. **Claims 1-3 and 9-15** are rejected under 35 U.S.C. 102(e) as being anticipated by Gross et al (Gross hereinafter).

With respect to **claim 1**, Gross shows a method *of transferring ownership of a volume comprising the steps of:*

changing ownership of the plurality of disks to an un-owned state from a state of source tile server ownership [See vgexport command on lines 49-55, column 9];

changing ownership of the plurality of disks to a state of destination file server ownership from the un-owned state [See vgimport command on lines 49-55, column 9].

With respect to **claim 2**, Gross shows *the step of changing ownership of the plurality of disks to an un-owned state further comprises the steps of:*

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changing a first ownership attribute of the disks to an un-owned state [See lines 55-60, column 9. The vgexport removes /dev/volume_group from /etc/lvmtab file]; and

changing a second ownership attribute of the disks to an un-owned state [See lines 55-60, column 9. The vgexport removes the device files associated with /dev/volume_group from the system].

With respect to **claim 3**, Gross shows *the step of changing ownership of the disks to a destination file server ownership further comprises the steps of:*

changing a first ownership attribute of the disks to a destination tile server state [See lines 1-12, column 10. The vgimport adds /dev/volume_group to /etc/lvmtab file]; and

changing a second ownership attribute of the disks to a destination file server state [See lines 1-12, column 10. The vgimport adds the devices files associated with /dev/volume_group to the system].

With respect to **claim 9**, Gross shows *a method of transferring ownership of a volume having a plurality of disks comprising the steps of:*

writing a first log file; [The vgexport causes lvmtab file to be rewritten. See lines 55-60, column 9]

performing a first part of a transfer process [The vgexport removes device files. See lines 55-60, column 9]

writing a second log file [The vgimport causes /dev/volume_group to be written. See lines 1-12, column 10]

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performing a second part of a transfer process. [The vgimport cause lvmtab to be rewritten. See lines 1-12, column 10]

Claims 10-15 incorporates all the limitations of claims 1-3, but in computer product form and apparatus form rather than in method form. The reasons for the rejections of claims 1-3 apply to claims 10-15. Therefore, claims 10-15 are rejected for substantially the same reasons.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 4-7** are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsunami et al (Matsunami hereinafter) in view of Gross.

With respect to **claim 4**, Matsumata does not show its limitations. However, Gross shows:

sending a first message to a source file server [See lvremove command on lines 35-38, column 4. The command is in UNIX; it would be obvious that the command is issued from a client via telnet or xterm sessions];

receiving a response from the source file server [It is inherent in the execution of lvremove command to give a response, which would then be transmitted back to the client];

aborting in response to the response containing abort information [If the command were unable to execute, lvremove has inherent capability of generating an error, in which case any further steps for disk transfer may not be possible].

verifying that the volume can be transferred in response to the response not containing abort information [The successful completion of the all LVM commands serve as the step for“verifying” that one can move the volume to the next step];

sending a second message to the source file server [vgreduce can be used. vgreduce is one of the commands inherent in LVM]; and

performing a second part of a transfer process in response to a message received from the source tile server [vgremove is one of the commands inherent in LVM].

It would have been obvious to one of ordinary skill in the art at the time of the invention to sequence the steps given above in order to remove a volume group from a system, because the removal *requires* the following steps to be executed in proper sequence. (1) transmission and reception of commands from a client station (2) the removal of all LVs (vgremove will generate an error if there are any logical volume which exists on the volume group) (3) the removal of the volume group and physical volumes. There is no other method.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use LVM commands (either inherent or otherwise) given in Gross with Matsumata's system, because as it is shown in Fig. 11, LVM (item 252) is part of Matsumata's system. The

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Management Console (301) can generate proper LV commands to LVM on the server, to release the disks to be transferred.

With respect to **claim 5**, Gross's LVM has commands that are inherent and meet the following limitations:

changing a first ownership attribute of the disks to a destination file server state

[vgcreate, part of LVM, creates the volume information on the disks].

Matsumata shows

changing a second ownership attribute of the disks to a destination tile server state.

Matsumata shows the feature that reads on "second ownership attribute." See WWN in Fig. 3 of Matsumata. It must be set to a new ownership value upon setting a new host server.

It would have been obvious to one of ordinary skill in the art to combine Gross and Matsumata for the reasons given for claim 4.

With respect to **claim 6**, Matsumata shows steps of:

verifying that the disks can be transferred in response to an initial request from a destination file server [The management console is opened at the server, as it can be at any terminal. See Fig. 7 for forming disk pool that can be used. The execution of the management console would send the first message from the server];

sending an acknowledgement to the destination file server [See paragraph 071 The server name is entered to LUN forming program interface, which communicates to the server];

receiving a second message from the destination file server [See paragraph 0071. The server sends a response back];

aborting if the second message contains abort information [The paragraph 0078 speaks of preventing access conflict];

changing the volume to an off-line status in response to the second message not containing abort information [Removing a volume group from the source server (See the discussion of claim 5) makes it “off-line.” Also, note the command vgchange.]

performing a first part of a transfer process [See the discussion of claim 4 above]; and
sending a third message to the destination file server [See 0095. Pool manager sends notice to the pool management agent].

With respect to **claim 7**, Gross’s LVM has commands that are inherent and meet the following limitations:

changing a first ownership attribute of the disks to an un-owned state [pvremove removes the LVM information on the disk].

Matsumata shows *changing a second ownership attribute of the disks to an un-owned state*.

Matsumata shows the feature that reads on “second ownership attribute.” See WWN in Fig. 3 of Matsumata. See paragraph 0078, which talks about erroneous deletion. Upon deletion, WWN must be set to null to indicate availability.

5. **Claim 8** is ejected under 35 U.S.C. 103(a) as being unpatentable over Matsunami and Gross and further in view of Noveck et al (Noveck hereinafter).

In reference to **claim 8**, except for the steps regarding log files, all of the elements of the claim have been discussed with respect to claims 4-7.

Neither Matsumata nor Gross shows the following:

writing a first destination log tile;

writing a first source log file;

writing a second destination log file;

writing a second source log file;

writing a third source log file;

writing a third destination log file; and

erasing the previously written logs.

Noveck shows logging associated with volume creation and volume destruction. See lines 8-27, column 3 of Noveck. In the preceding combination of Matsumata, Gross and Noveck, the log would be written at both the destination and the source servers and then erased after the second reboots.

It would have been obvious to one skilled in the art at the time of the invention to log file system transactions in a log file, because as Noveck explains from line 66, column 2 to line 7, column 3, the logging would make the system more reliable and stable in the event of a system problem.


Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ji-Yong D. Chung whose telephone number is (571) 272-7988. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wiley can be reached on (571) 272-3923. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ji-Yong D. Chung
Patent Examiner
Art Unit: 2143


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